

REMARKS

I. Rejection under 35 U.S.C. § 103

A. Claims 1-6, 8-10 and 12-25 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 5,796,055 to Benson, Jr. et al. (hereinafter "Benson") in view of United States Patent No. 5,932,329 to Frost et al. (hereinafter "Frost"). In the Final Office Action dated December 23, 2002, the Examiner made the following comments (numbers in brackets added by Applicants):

Benson, Jr. discloses an interlayer consisting of a pair of glass sheets [1] comprised of polyvinyl butyral [2] with an intermediate sheet [3] of polyester (abstract) which is a laminated article (column 2, line 62). Benson Jr. discloses the sheets [4] may be made of glass, plastic or a combination thereof (column 3, lines 38-39) which may be of any thickness (column 3, lines 45-46). The reference discloses the sheets [5] are plasticized polyvinyl butyral (column 4, lines 3-4) where the thickness of the intermediate sheets [6] are not limited to the invention and can be increased to raise the stiffness of the article (column 9, line 63 through column 10, line 5).

Office Action dated December 23, 2000 at 3 (bracketed information added by Applicants). For ease in understanding, the information disclosed in brackets [] was added to distinguish between the many different sheets mentioned by the Examiner. Applicants respectfully traverse these rejections and ask the Examiner to withdraw these rejections in view of the following arguments.

Referring to Figure 2 from Benson, Benson discloses an article 20, which is the interlayer referred to by the Examiner. The article 20 (interlayer) includes a sheet 22 hereinafter referred to as outer sheet 22 and an inner sheet 24 hereinafter referred to as the inner sheet 24. Sheets 22 and 24 are first type of sheets cited by the examiner ([1] above). As is clearly stated in Benson at column 3, lines 38-39, it is these sheets 22 and 24 [1] that "can be made of any material e.g. glass, metal, plastic, refractory or combinations thereof. Further, the sheets, in particular glass

sheets, may be made of clear glass, colored glass, coated glass and glass having additives to absorb selective wavelengths of the solar spectrum; the glass sheets may be thermally tempered, heat strengthened, chemically tempered and/or annealed, and the glass sheets may be flat or bent. The sheets 22 and 24 may be of any thickness; however, as can be appreciated by those skilled in the art, increasing the thickness of the sheets to dampen vibrations increases the weight of the article 20." Benson col. 3, ll. 38-48. "[T]he article 20 is a transparency or glazing e.g. a windshield, side window, back window, and/or canopy for a vehicle." Benson, col. 3, ll. 50-52. As shown, the first sheets [1] cited by the Examiner are the same as the fourth sheets [4] cited by the examiner. The sheets that may be made of glass, plastic or a combination thereof (column 3, lines 38-39) which may be of any thickness (column 3, lines 45-46), the fourth sheets [4] cited by the Examiner, are the outer sheets 22 and 24. Thus, the disclosure in Benson column 3, lines 38-46 modify the description of the outer sheets 22 and 24, and no other sheets disclosed in Benson.

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Clearly, the sheets 22 and 24 are equivalent to Applicants' glass sheets of independent claim 9, and glass layers of independent claim 15. Independent claim 1 does not claim outer glass layers or sheets. The paragraph in Benson at column 3, lines 38-48 concerns only the outer sheets of a laminated glass composite; sheets 22 and 24, the first sheets [1] and fourth sheets [4] cited by the Examiner. An important distinction to be made is that these outer sheets are not the same as the outer layers of the *laminate structure* that goes between the outer sheets. It is the outer sheets 22 and 24, the first sheets [1] and fourth sheets [4] that can be made of any thickness, as cited by Benson at column 3, lines 45-46.

Continuing on in reference to Figure 2, the Benson article 20 contains interlayers 28 and 36, the second cited [2] by the Examiner, adhered to outer sheets 22 and 24, the respectively. It

is these interlayers 28 and 36, that can be sheets of plasticized polyvinyl butyral (the fifth sheets [5]). Benson, col 4, ll. 2-7. The interlayers 28 and 36, the second sheets [2], are the sheets that are plasticized PVB (the fifth sheets [5]). Again, the PVB sheets in Benson are the interlayers 28 and 36, not the outer sheets 22 and 24. Therefore, when the Examiner states that “the sheets are plasticized polyvinyl butyral,” the Examiner is quoting disclosure describing the interlayers 28 and 36. The first PVB reference used by the Examiner, the second sheets [2], are the fifth sheets [5] described by the Examiner and are described in Benson at column 4, lines 3-4, that are plasticized polyvinyl butyral, not the outer sheets 22 and 24, which are the first sheets [1] described by the Examiner.

Finally, some embodiments of Benson disclose the use of intermediate sheets 74 and 76 (the third sheets [3] and the sixth sheets [6] as cited by the Examiner) as shown in Figure 5 of Benson. As is expressly disclosed in Benson at col. 9, ll. 13-19, the intermediate sheets 74 and 76 are different and distinct from the outer sheets 22 and 24, and the interlayers 28 and 36. It is the intermediate sheets 74 and 76 only that column 9, l. 63 through col. 10, l. 5 describes. Therefore, this passage cited by the Examiner describes only the intermediate sheets.

In sum, the Examiner uses the word “sheets” many times in both the final office action and the advisory action. However, the multiple “sheets” of Benson are not interchangeable, as is argued by the Examiner. The Examiner states in the Advisory Action that Applicants prior arguments were not persuasive because Applicants arguments that “the sheets of Benson are not sheets of PVB” was not correct because Benson discloses a PVB sheet. However, what the Examiner has failed to appreciate is that the Examiner has rejected the instant claims based on properties of “sheets” in Benson that are not the PVB sheets disclosed in Benson.

In breaking down the Examiner's rejection, the Examiner assumes that all the "sheets" disclosed in Benson are interchangeable. The Examiner's arguments starts with saying that "Benson Jr. discloses the sheets may be made of glass, plastic or a combination thereof (column 3, lines 38-39) which may be of any thickness (column 3, lines 45-46)." As shown above, this describes only the outer sheets 22 and 24. The Examiner's argument then states that "The reference discloses the sheets are plasticized polyvinyl butyral (column 4, lines 3-4)...." This describes only the interlayers 28 and 36. Finally, the Examiner states that "...where the thickness of the intermediate sheets are not limited to the invention and can be increased to raise the stiffness of the article (column 9, line 63 through column 10, line 5)." This describes the intermediate sheets 74 and 76. Thus, because the Examiner's rejection was based on the thickness of the intermediate sheets and/or the outer sheets, Applicants' arguments that the rejection was not based on the PVB sheets is entirely accurate. The Examiner's rejection is not based on the PVB sheets of Benson, and therefore the entire rejection based on Benson is improper and should be withdrawn.

With regard to the additions of Frost, the Examiner's argument that Frost teaches "the same materials having the same function as applicants claimed invention," December 23, 2002 Office Action at 3, is misplaced. Applicant's arguments pertaining to intended use are directed to the obviousness of the attempted combination to arrive at the claimed structure, and are very pertinent and applicable. As stated previously, Frost is directed to improving laminate optical performance by reducing a shrinkage effect commonly referred to as "hammering". This is taught to be accomplished if the coated support film (PET) is glued on at least one side comparatively firmly to a glass by a very thin adhesive (PVB) layer. This is not like Applicants' instant invention at all. It would not have been obvious to assemble into the Frost structure a

PVB adhesive layer having a thickness of 0.25 to 2 millimeters and a glass transition temperature greater than 35 degrees (Claim 1), or a laminate featuring layers of PVB having a thickness of 0.25 to 2 millimeters with a maximum flexural modulus greater than 350 N/cm (Claim 9). These two improvements claimed herein do not include being glued on at least one side comparatively firmly to a glass by a very thin adhesive (PVB) layer to avoid a "hammering" effect. Therefore, according to the expressed teachings of Frost, the improvements disclosed and claimed herein would have the tendency to impair the optical quality of laminates, and would not be useful in the Frost laminate structure.

III. Summary

In view of the foregoing Amendment and Remarks, Applicants believe that all rejections of and/or objections to the claims have been overcome and that the instant case is in condition for immediate allowance. In particular, Applicants have clarified its position that the Examiner's rejections are not based on any PVB teachings from Benson, and are therefore improper and should be withdrawn. Consequently, Applicant respectfully requests favorable reconsideration of the Application and issuance of a "Notice of Allowance" therefor.

The Examiner is invited to contact the undersigned attorney at (713) 787-1516 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,



Matthew F. Steinheimer
Reg. No. 47,968
Patent Attorney for Assignee

HOWREY SIMON ARNOLD & WHITE, LLP
750 Bering Drive
Houston, Texas 77057-2198
(713) 787-1400

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